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Combat Crew

strategic air command

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FLARE

Combat Crew

strategic air command

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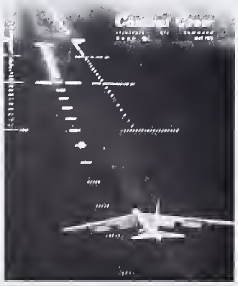

ON OUR COVER

A B-52, established on final approach, is operating within the Critical Eleven Minutes. See story on page 4.

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THE COMMON THREAD

Lieutenant General Bryan M. Shotts
Commander, Fifteenth Air Force

Most Americans, I imagine, are well familiar with the story of George Washington's troops at Valley Forge in the winter of 1777-78. Ill-prepared, poorly equipped and undisciplined, his "army" barely survived the bitter winter. American morale, and the stock of the American fighting man, were at an all-time low.

Spring came to Valley Forge, a sweet spring of renewal and revitalization for the men quartered there. A fighting spirit was rekindled in them, and it led inexorably to a series of victories that culminated at Yorktown. What was the driving force, what was the catalyst that turned a collection of dispirited men into an army capable of defeating the finest fighting force of that time? There were, of course, many factors. Increased French support proved invaluable. The weather itself was important. But I believe that the driving force behind these improbable victories was **discipline**, the main ingredient that separates an army from a mob. Self-discipline, the building block which must be present to form the foundation for group discipline, was surely present and it kept the men in camp that winter. Baron Friedrich von Steuben, the Prussian drillmaster, and other experienced commanders from all over Europe drilled and pounded discipline into Washington's "rabble" and turned it into an army.

The pattern continued throughout our history. Where discipline was present, our military was capable of great achievements; where it was absent or weakened, the record was far less worthy of emulation. We recall with pride the rare courage and discipline of Pickett's troops as they followed him up Gettysburg's Cemetery Ridge straight into the blazing hell of the Union guns. We flush with pride when we think of our men at Bastogne in World War II, proving that our discipline was equal to — no, superior to — that of the vaunted Wehrmacht. We stand a little taller when we hear people talk about the airmen who flew into the almost impregnable defenses of the Ploesti oil fields, or into the similar defenses around Hanoi more than three decades later.

The self-discipline of the individual fighting man and the group discipline of his squad, company, flight or squadron have been present on each battlefield — on land, sea or air — when victory has been attained. It was so in the past; it is so now; it will be so in the future. Our combat crews beneath the earth in launch control centers and in the cockpits of our aircraft have this kind of discipline. They share it as a common heritage with their fighting fathers of the past and hold it in trust for their sons in the future.

Self-discipline is the cornerstone upon which we build military strength and effectiveness, yet its development is not easily defined. To some it comes quickly and easily; to others with much more difficulty. An unfortunate few never achieve it. The

continued on page 24

Takeoff plus 3 and landing minus 8 equals the . . .

CRITICAL 11 MINUTES

Major John R. Dockendorff
HQ SAC, Offutt AFB

A SAC B-52 is approaching home base after a long mission practicing low level, bombing, refueling, and navigation. The crew is tired but satisfied with their performance today. They now start the series of tasks required to get the big hummer on the ground. The AC flies the airplane and calls for the descent checklist. They review the approach and the copilot calls metro for the latest weather. The AC monitors center who turns them over to approach control and he retunes the radio. The copilot finishes copying the weather and changes No. 2 UHF to command post where he confirms their intention to land and relays a list of maintenance writeups. The AC then calls for the continuation of the descent checklist (19 items) and they start the penetration. The most critical minutes of the mission have begun. From penetration to after landing the pilots will read and accomplish 54 checklist items, numerous radio calls to approach, GCA, tower, possibly to their command post again, several crew coordination interphone calls, and fly the airplane. In a few words, they are busy as H--- and must fight to prevent additional distractions such as weather or possible emergency procedures from overloading the system and interferring with the primary task of safely flying the airplane. We all know flying the beast is number one but other things can get nearly out of control more often than we like to admit.

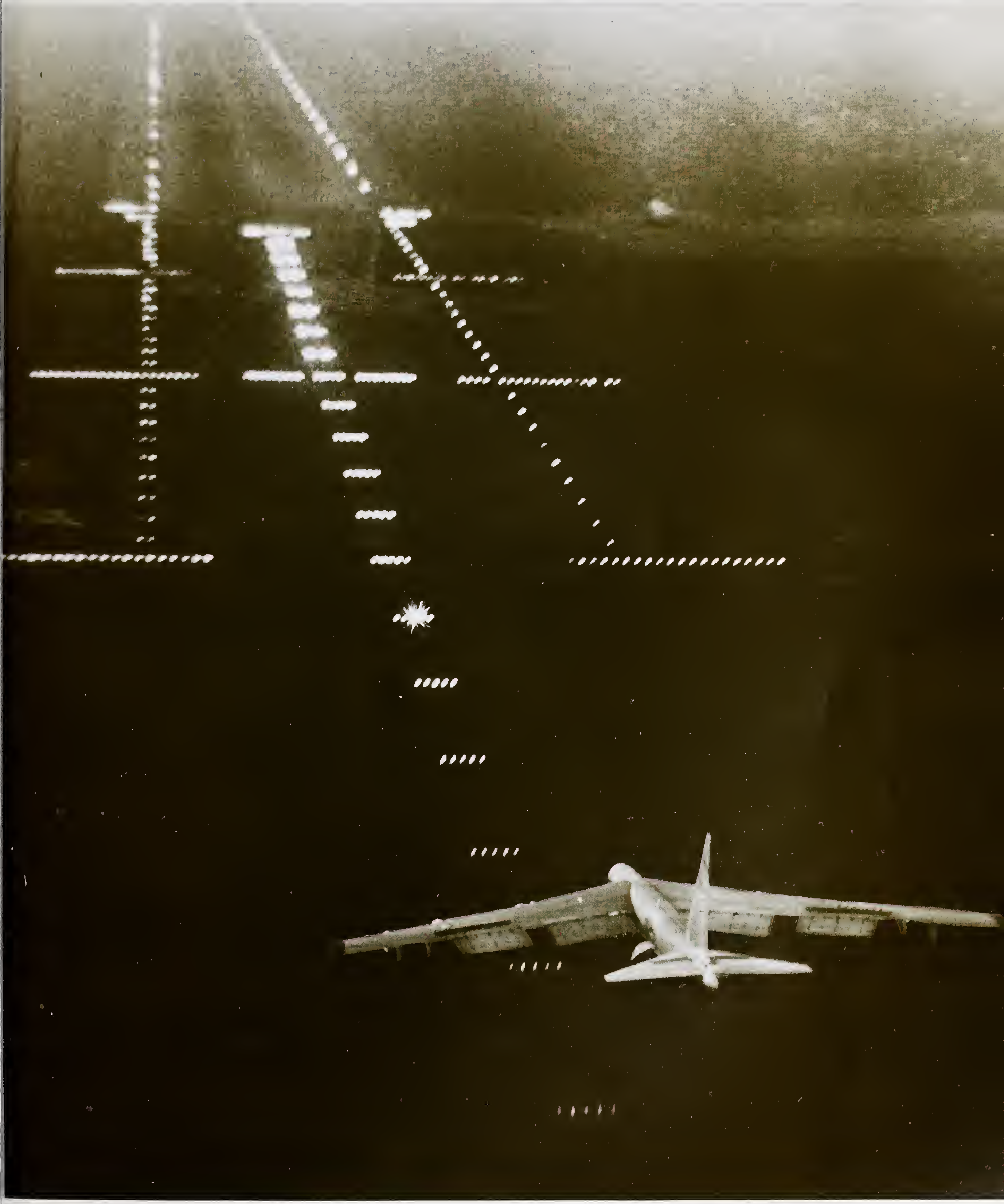
Contrast this with the airline crew who is making an enroute descent to the civilian airport on the other side of town. Wait a minute! Read just a little more before you drop your hot little copy of *Combat Crew*. I know the missions of these two crews are vastly different and that the Buf is more complicated, but I submit that all aircrews face very similar problems in those few minutes just after takeoff and just before landing.

Back to the airliner — the cockpit crew (normally three pilots) comes out ahead in this comparison with a SAC crew for several reasons. Some are logical, some are controversial, but since the airline safety record is better than ours, maybe we can learn something from them. After all, we in Safety believe there is no plagiarism in our business, so if somebody has a good idea we feel free to borrow it.

The first advantage the civilians have we can't do much about, but most domestic crews get 30-50 takeoffs and landings per month. On the one hand this amount of practice is beneficial, but statistics can penalize airline crews by the sheer magnitude of their increased exposure to the critical minutes of takeoff and landing. To reduce the hazard of this exposure, one airline has a program we can learn a lot from. It is called "The Critical Eleven Minutes" of a flight.

The critical eleven minutes are defined as takeoff plus three and landing minus eight. The program stresses two concepts. One is individual crewmember awareness and readiness to insure that they are prepared to take timely and appropriate action if an emergency occurs. This is stressed to the flight attendants in the form of a suggested "30 Second Review" of emergency procedures (evacuation, door and slide operation, etc.) to be done every time they strap in for takeoff or landing.

The second concept is the development of procedures to minimize cockpit distraction and



workload, especially during the critical eleven minutes. For example, the NO SMOKING sign is usually on only during these eleven minutes and is designated as a signal to remind non-cockpit crewmembers not to knock, enter, or even call the cockpit on interphone while this sign is illuminated, except in serious emergency. Other cockpit procedures are also designed to minimize distractions.

Some airlines require that neither captain nor first officer read any normal checklists when the plane is moving. The second officer reads which allows minimum "head in cockpit" time for the front seaters.

The checklists themselves are designed around a different philosophy from most USAF checklists. Airlines require qualified crewmembers to know the systems and procedures well enough to accomplish them at the proper time, then read a brief list as a true doublecheck. This contrasts with USAF's "read and do" philosophy. Disregarding philosophy, one result is an airline checklist consisting of 15-25 items which accomplish the same basic functions as the aforementioned fifty-four B-52 items.

Checklists were further modified as a result of the critical eleven minutes program. The reading of After Takeoff Checklist is delayed until 10 to 12,000 feet is reached. Power and flap adjustments are made at the appropriate time, but delaying the reading maximizes the time available for all three pilots to watch for traffic and cross-check instruments. In the landing phase the preliminary checklists are done early (usually above 10,000 feet) such that only three to four items remain to be read when final approach is started and a three-item final check is made when the gear comes down for final descent. Anything that reduces distractive elements such as checklist reading, making flight log entries, and radio calls during the time the airplane is in the busiest part of the environment — the airport area — is worthy of attention.

Another airline uses a procedure that is controversial even among other airlines. On every approach they obtain the airport altimeter correction factor from their company dispatch office. After careful cross-check by all three pilots, they then reset two of the three altimeters in the cockpit to read altitude above the runway. In effect this means that every approach at every airport looks the same on the instruments — the two altimeters always read zero on the ground. This means that for a 100-foot decision height (DH) approach, the pilots can always count on seeing 100 feet on the altimeter when the decision must be made.

Sounds wild doesn't it? But consider this. That airline has not had a fatal accident in several years and probably has the world's best safety rate as of this time.

Airline crew coordination and training philosophy is similar to SAC's in that SAC manuals contain words similar to the following airline manual excerpt.

> "The emergency procedures in this handbook represent the best available facts about these subjects. Flight crews should follow these procedures as long as they fit the emergency. At any time they are not adequate or do not apply, the flight crew's best judgment should prevail. Safe altitude and air-speed should always be of primary concern."

Have we been emphasizing this enough? What about this excerpt from an airline normal procedures section?

> "All cockpit crewmembers shall assist the captain in monitoring and cross-checking instruments, speeds, assigned altitudes and headings, control positions, including flaps, spoilers, landing gear, stabilizer position, etc. A crewmember shall immediately call to the captain's attention any discrepancy noted."

Do SAC pilots properly and readily solicit this type of cross-checking by other crew members? We have the procedures but some crews appear to ignore them.

Why talk about the critical eleven minutes when we have always said safety must be "paramount" and be constantly stressed throughout the mission? Indeed, safety must be held constantly in highest priority, but history, luck, fate, complacency, pilot proficiency, crew discipline, or some as yet unnamed factor has so far proven that safety is like a blanket slightly too small to cover the bed. (We have not yet achieved a zero accident rate.) We must, therefore, cover those parts which are most vulnerable. The world air carriers suffer about 85 percent of their airplane losses in the critical eleven minutes of flight. An analysis of SAC accidents since 1957 shows about 70 percent of the SAC major accidents also occurred in this time span. These numbers indicate the need to stretch a large portion of our blanket in this direction. Experience has shown that when we try to stretch the blanket in all directions at once — á la "paramount" — thin spots and tears can occur. We must cover the most vulnerable areas pending the development of a better blanket.

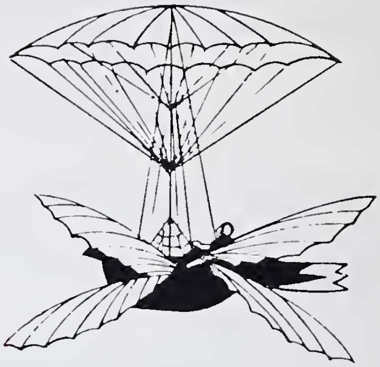
What can you and I do? A good salesman would produce his order book at this point and ask for your order. The nebulous and intangible qualities of safety make this difficult but we must start somewhere. SAC Safety has asked the "school house" experts (CCTS, CEVG, CFIC) to evaluate the following questions for possible use by SAC crews and make any other ideas known.

- Could some items on SAC checklists normally accomplished during the critical eleven minutes be eliminated or relocated to less critical times such as above 10,000 feet?
- Could SAC pilots delegate more checklist reading to other crewmembers during critical phases of flight?
- Should SAC checklist philosophy and construction be revised such that amplification is contained only in the flight manual and a simplified list used as a true doublecheck on items accomplished as opposed to the "read and do" list?
- Can other pilot duties, such as flight log entries, fuel panel changes and radio calls be accomplished during less critical times?
- What can be done to bring other crewmembers "into the loop" to improve crew discipline and provide a true cross-check to reduce the risk to the aircraft?

Many of these questions are based on nonspecific and time honored concepts but any area is fair game for safety if accidents can be prevented. We need you and your ideas. Talk it over at hangar flying sessions. Talk to your IPs and supervisors. Most good ideas come from the field and we need your help. Send your ideas to this magazine or to SAC Safety. At the very least, think about these concepts and develop an automatic reaction of increased vigilance and your own "30 Second Review" of the critical eleven minutes of a flight.

ABOUT THE AUTHOR.

Major John R. "Doc" Dockendorff is currently on a four-year military leave of absence from Trans World Airlines. Assigned to Hq SAC as the Air National Guard Advisor to the Director of Safety, he is a liaison officer for the transfer of KC-135 aircraft to the Air Reserve Forces. In addition to being a pilot for TWA, Doc served as an instructor flight engineer and taught flight attendant (hostess) safety. He has accumulated over 5000 hours of flying time and has been an aircraft commander in the B-52D and (ANG) KC-97L. He holds a B.S. in mechanical engineering from Iowa University and an M.B.A. from Auburn.



Your

Capt Demmy Devenger
310 ARS, Plattsburgh AFB.

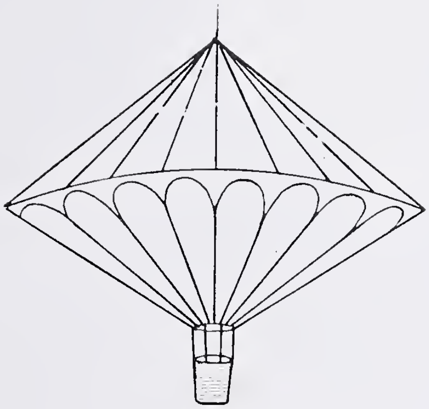
As aircrew members, we can hardly say enough good things about the noble parachute. It is a lifesaving device of obvious utility, that has consistently proven its capacity to extract grateful aviators from disabled aerospace vehicles. Statistically speaking, however, you are probably never going to have the occasion to use your parachute. Very few crewmembers do. That fact is a testimony to the safety of our flying operations, the excellence of our machines, and the high quality of our maintenance. Nevertheless, it is always reassuring to know that we have parachutes in our aircraft if we need them, because they do save lives. That being the case, it seems incredible that any crewmember could ever find cause to abuse the parachute. Not so . . . It happens all the time, and it has happened for years.

Abuses of the parachute fall into one of two categories. First, a crewmember can fail to wear his parachute inflight. Secondly, a crewmember can fail to take proper care of his parachute in terms of handling and inspection. Both types of parachute abuse are serious, and both have no place in our flying operations.

Hopefully, we have long ago licked the first category of parachute abuse, but it wasn't always so. Parachutes were available long before World War I began, and could have saved hundreds of lives during that ordeal, but they were never given the chance. Simply put, crewmembers didn't choose to wear them, when, in fact, they should have.

The development of the parachute has roots far back into history. Leonardo da Vinci envisioned the idea as long ago as 1514. In 1793, a Frenchman named Francois Blanchard claimed to have jumped from a balloon with a parachute. Another Frenchman, Andre J. Garnerin made a series of successful parachute jumps between 1797 and 1804. In fact, throughout the nineteenth century, a great deal of experimental research in parachuting techniques was conducted. This much is certain: parachute development preceded successful powered flight development. The earliest aviators should have been flying with parachutes at their sides.

At the outbreak of World War I, pilots on both sides felt that parachutes were of little use. The early parachutes were a cumbersome attached type, whereby the chute was carried separately in a container of the aircraft, and attached to the pilot's harness when he flew. If he jumped from the



best guarantee

aircraft, the weight of his body would tug the chute from its container, and deploy it into the slipstream. Unfortunately, most pilots assumed that the parachute would never clear the aircraft without first getting tangled up in some part of the aircraft structure. They didn't want to take the chance.

This whole situation was tragic for a couple of reasons. First, as early as 1908, an American named Leo Stevens had developed the first manually opened parachute. It clipped onto the pilot's harness and opened outside the aircraft with a tug of the ripcord. If anyone at that point in history had seriously wished to promote a better solution to the cumbersome attached type, they could have readily seized upon Stevens' improved design. Secondly, even accounting for the deficiencies of the early parachute designs, one thing still remains: even a slim chance for survival would have been better than no chance at all.

Experience proved to be the best teacher. The high loss rate of balloon ships prompted a number of observers to first begin using parachutes. Eventually, some German pilots also began using them as reported by Allied pilot sightings late in the war, but by then it was already 1917 and hundreds of lives had been lost in combat. The failure of pilots to use parachutes in World War I was certainly a tragedy in the annals of aviation.

On the brighter side, the limited experience of parachutists during that war did much to reinforce the idea that parachutes were safe and reliable. After W.W. I, the U.S. Army Air Corps spent a lot of time and effort developing a better free type manual parachute. In conjunction with a number of leading civilian parachute experts, they developed the Army Model A, which Leslie Irvin successfully demonstrated on April 28, 1919. The Model A had a flat circular canopy, and was very reliable. Its basic design with successive refinements was used until the end of World War II. If there was any skepticism about the reliability of the new chute, this was disspelled on October 22, 1922, when Lt. Harold Harris made the Army's first operational manual bailout. His success was an example for others, and did much to promote the mandatory use of parachutes by Army aviators. On January 23, 1923, the Chief of the Air Corps made it official. He declared that all Army pilots would thereafter use parachutes.

In retrospect, it really seems that the use of parachutes should have been required from the very

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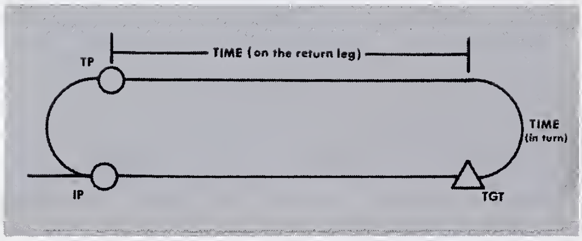
WHEN DO I TURN?

Major Robert P. Reisinger
HQ SAC Future Plans, Offutt AFB

Timing problems associated with race track bombing can consume an inordinate amount of a navigator's time during both flight planning and inflight navigation. The following Time Formula can save time while increasing the accuracy of such computations:

$$\frac{\text{Groundspeed (to Tgt)}}{2 \times \text{TAS}} = \frac{\text{Time (on return leg)}}{22\ (+\text{ time early}/-\text{ time late})}$$



FLIGHT PLANNING

The navigator has flight planned up to his first release at 0130Z. A second release is scheduled at 0200Z. The navigator now needs to know his ETA to the turn point back toward the IP and the distance to the turn point. By using the time formula, he obtains the answer as follows:

Given: TAS to be flown in pattern is 440K
Groundspeed to the target is 500K
ETA to the first release is 0130Z
Second release scheduled at 0200Z

Find: ETA to turn point to make the second release at 0200Z
Distance to the turn point

Solution:
$$\frac{\text{GS (to Tgt)}}{2 \times \text{TAS}} = \frac{\text{Time (on return leg)}}{22}$$

$$\frac{500\text{K}}{2 \times 440\text{K}} = \frac{\text{Time ; Time} = 12\tfrac{1}{2}\text{ min}}{22}$$

ETA to 1st release 0130Z
Time on return leg 12½
Time in turn 04

ETA to the Turn Point 0146½Z
Distance to the Turn Point:
Groundspeed to the TP x 12½ min
380K x 12½ = 79 nm

INFLIGHT NAVIGATION

The Time Formula can be used as well in flight as for preflight planning. In the following example, the navigator will use the Time Formula to adjust his ETA to the turn point for a late initial release plus adverse winds different from those used to flight plan:

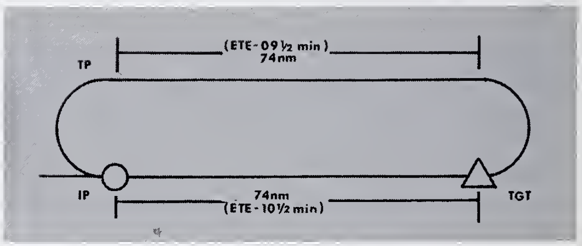
Given: TAS to be flown is 440K
Groundspeed to first release is 420K
ATA at first release is 0132Z (two minutes late)
Second release scheduled at 0200Z

Find: ETA to turn point to make the second release at 0200Z
Distance to turn point

Solution:
$$\frac{\text{GS (to Tgt)}}{2 \times \text{TAS}} = \frac{\text{Time (on return leg)}}{22\ (+\text{ time early}/-\text{ time late})}$$

$$\frac{420\text{K}}{2 \times 440\text{K}} = \frac{\text{Time}}{22-2} \qquad \text{Time } 09\tfrac{1}{2}\text{ min}$$

Distance to the Turn Point:
Groundspeed (to the TP) x 09½ min
460K x 09½ minutes = 74nm
ETA to the Turn Point:
ETA to 1st release 0132Z
Time on return leg 09½
Time in turn 04
ETA to the Turn Point 0145½Z



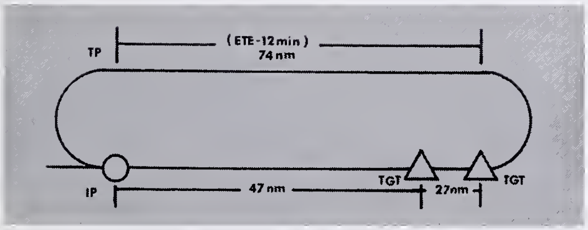
When utilizing the formula on double release targets, there is a special technique which must be used.

Given: TAS to be flown in pattern is 470K
Groundspeed to release 570K
ATA at first release was 0102Z
Time between releases is 3 minutes
Second double release is scheduled at 0130Z

Find: ETA to turn point to make the first release of the second run at 0130Z as scheduled.
Distance to turn point

Solution:
$$\frac{\text{GS (to Tgt)}}{2 \times \text{TAS}} = \frac{\text{Time (on return leg)}}{22\ (+\text{ time early}/-\text{ time late})}$$

$$\frac{570\text{K}}{2 \times 470\text{K}} = \frac{\text{Time;}}{22-2} \qquad \text{Time} = 12\text{ min.}$$



ATA to 1st release	0102Z
Time on return leg	12
Time in turn	04
Time between releases	03
ETA to Turn Point	0121Z

Distance to turn point:
Groundspeed (to turn point) x 12 min
370K x 12 min = 74nm

The denominator (22 minutes) in the right side of the equation is derived by subtracting the total time in the turns at each end of the race track (8 minutes) from the scheduled time between bomb runs (30 minutes). In flight, should the initial release be late or early, the time in minutes late or early will be subtracted or added respectively to the figure (22) for 30-minute race track patterns. A standard figure of 37 minutes is used for race track patterns of 45 minutes.

The stated formula is based on a constant true airspeed being flown in the race track pattern between runs. However, if different airspeeds are desired on each leg, e.g., increase airspeed on the return leg to the IP to gain greater distance from the target area upon turning IP inbound, the sum of the two different airspeeds on each leg should be substituted in the equation for the term, "2 x TAS."

In summary, the Time Formula may prove to be of great value in planning bomb releases in race track patterns replacing your old half-guess, trial and error method.

U-2 Pilot's Account of . . .

AN EIGHT MILE FREE FALL

ROBERT T. RENDLEMEN, Captain, USAF
349 Strat Recon Sq
Davis-Monthan AFB, Arizona

The aircraft entered a snap roll to the left and I was thrown against the canopy rail. My pressure suit had previously inflated when the engine flamed out. I instinctively reached for the ejection "D" ring and noticed my feet were still on the lower instrument panel where they had been braced as I tried to pull the aircraft out of the dive. As I tried to put my feet in the stirrups, I pulled the "D" ring. The canopy started to raise and the cockpit filled with fog. The ejection sequence, including man seat separation, went automatically and without difficulty. My altitude at ejection was approximately 55,000 feet.

Training had taught me to "beat the seat," but the entire ejection sequence happened so fast that I didn't even have time to think about it before it was over. Even though my faceplate had fogged over, I knew I was free of the aircraft. Condensation beads flowing along the inside of the faceplate allowed me to see out and I saw that I was falling on my back with the aircraft right above me. I was slowly rotating in a flat spin. The aircraft wings appeared short and stubby and the horizontal stabilizers were missing from the tail. My only thought was that the aircraft would surely hit me when the parachute deployed and slowed my descent. By looking back over my shoulder I could see the ground below, but objects were not yet recognizable. I found and pulled the green apple; however, the ejection sequence had already activated the emergency oxygen supply and I had plenty of oxygen.

The free fall seemed to last forever. One second after 14,000 feet the parachute automatically deployed. Opening shock was not severe and I immediately opened the faceplate and looked around. The cold, clean air was a pleasant feeling against my face. I looked up to check the canopy and to determine why I had not collided with the aircraft and found that because of the pressure helmet I could not see all of the canopy. The aircraft was not above or below me. I was able to see the countryside, which consisted of beautiful green trees, a small lake, and two small towns. The towns seemed close to me but by estimating my movement I did not think I would drift to either one. I reached down to deploy the survival kit and had difficulty in locating the velcro strip covering the release handle. The kit hung well down behind my legs and I had to bend down in order to reach it. I gave the handle a tug and saw the kit deploy. The rubber sack with all the "goodies" hung at the end of the lanyard. The yellow rubber raft was attached about halfway between me and the bag and was fully inflated.

After survival kit deployment, I could tell my oscillation under the parachute was becoming more pronounced. I then attempted to make the four line jettison but found the red lanyards too far up on the risers to reach with the restricted movement imposed by the pressure suit. By employing the water survival school techniques of hooking my opposite arm through the riser and pulling it down (method taught to open J-2 releases), I was able to reach and give the red lanyard a tug. The tacking was stronger than I anticipated but with a couple of good jerks the tacking broke and I saw the back of the chute billow out. Almost immediately the oscillation stopped. By looking at the ground, I could tell my forward speed had increased and by pulling on the lanyards I was able to turn myself with ease. I pulled on one lanyard to make a couple of 360 degree turns to prove to myself how maneuverable the chute actually was. I did not realize at the time how important this mobility would become.

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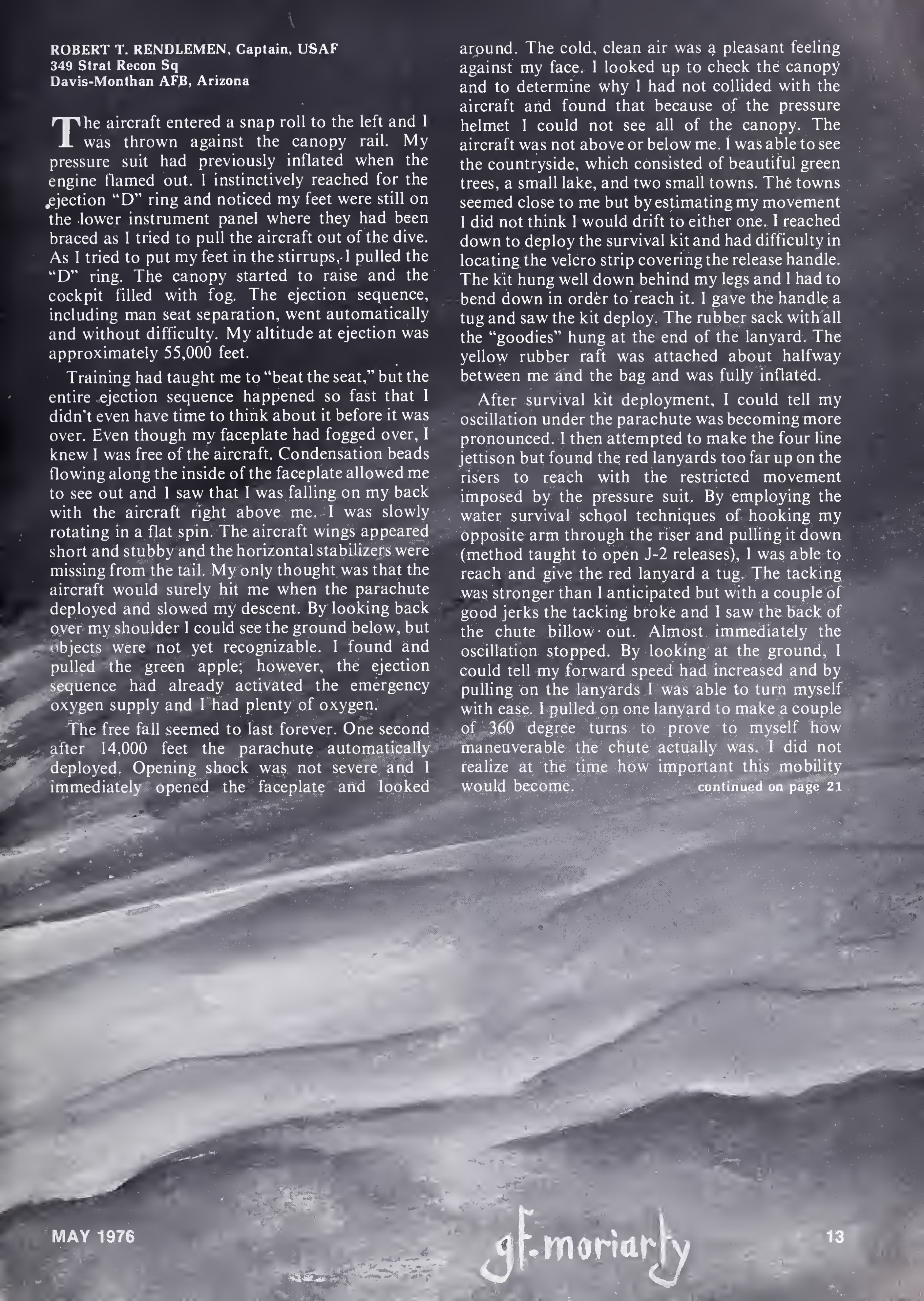


IT'LL NEVER H

CAPTAIN TOM LUISI
564SMS, Malmstrom AFB

Life on a Minuteman II crew is normally free of any real hazards. However, in the Missile Procedures Trainer (MPT) a crew gets to practice all kinds of exotic malfunctions, fires, equipment overheats, equipment shutdowns, and launch control center (LCC) evacuations. Most of what we see in the MPT has occurred before in an operational LCC, some of it never has, and hopefully is not likely to occur. Our training section has one entire three hour MPT session which covers every conceivable type of fire or electrical overheat which can occur in the LCC, its equipment building, and the topside support building. These procedures have always been important to me because I spend 15 days a month in an LCC, and over the past two years I have experienced five equipment fires/overheats.

The first three were single pieces of communications gear which shorted out and began smoking. These were not serious and were easily isolated. The fourth was an air conditioner motor starter which did not smoke but we could certainly smell it cooking. It took some finesse to figure that one out. But the last fire was the most serious and taxing of the lot. The training for something which will never happen certainly gives you confidence in yourself when that situation arises. Being able to do the job smoothly and quickly also gives you the time to get to safety before the situation gets worse.

Things had been rather quiet all day. It was about 1545 and our relief crew was due in about an hour. Larry, my Deputy, and I heard an unusual hissing sound coming from his console area. We traced the sound to the floor plates just in front of and to the left side of his console. Just then smoke began to swirl up from the floor. It turned quickly from white, to light grey to a very dark grey. It was a battery fire. We have had simulated battery fires in the MPT and the instructor or evaluator would always hand you an index card which says — "You see heavy dense smoke coming from the floor plates." Well, there was no index card this time, but there certainly was enough smoke. No crew member ever takes a battery fire lightly because the batteries are not your ordinary car type wet cell. They are about three feet high, three feet long, and a foot wide. They weigh about 1600 pounds each. When they are connected in sets, they have a capacity of 5000-10000 amps. There are 32 of these just under

APPEN, BUT. .

our floor plates. All things considered, we decided to hustle.

While Larry opened the blast door, I called the other squadron LCCs to let them know we were in trouble and would shutdown and evacuate. The smoke was coming up so fast I could not wait for all four LCCs to answer but told the first two who answered to pass along the information. Then Larry and I began our shutdown procedure.

We had shutdown a capsule in the trainer many times, so this shutdown was nothing new except it went a whole lot faster. I am sure we must have set some kind of speed record for shutting down an LCC. By the time we had pulled the last circuit breaker, half of the LCC was fogged in with smoke. We did not walk out of there, we ran! After we closed the blast door behind us, we stopped to think if there was anything else we needed to do. There wasn't, so we boarded the elevator and went topside.

Our Flight Security Controller (FSC), was waiting for us topside to let us into the support building. He had already received a call from the Squadron Command Post and had been told of our situation.

We had been topside only a few minutes when I heard an explosion in the capsule. There was a second explosion five minutes later. Acid vapors began seeping into the FSC's office from around the door to the elevator room. At first we just opened the windows to ventilate the area, but the vapors became stronger and the elevator area was filling with smoke. We began evacuating the support building at about 1610, just 25 minutes after our first indication of fire. The Facility Manager, Larry, and I were the last to leave. By that time we had counted four explosions. The security police had already established a control point at the end of the access road to the support building.

During the next several hours the disaster response team, base fire department, local fire departments, civil engineers, and the bioenvironment engineer arrived to help us control the situation. We weren't able to get back into the support building until 2230. At 0030, Larry and I went back down. Although it was safe, we elected to take Scott air packs.

We collected all our classified documents and dissipated all the code components. All of this material was to be brought back to the base. The LCC had no apparent damage. The floors were covered with soot where the fire started and everything was covered with a light gritty film. The air in the capsule was hazy. I found out later that a number of batteries were destroyed and that they had gotten hot enough to melt a brass terminal. As a matter of fact, the terminal melting off is what eventually stopped the fire.

It was a long and interesting tour, and after all the training and experience I have had with LCC fires, I never really expected to experience a battery fire. I do not know of anyone who has experienced any LCC fire which was as serious as this one. But I am willing to bet that there will be a lot of crew members who will be taking their trainer rides more seriously and thinking — it might just happen to me. If they do, they will have the confidence to handle the situation should it ever arise.

About the author. Captain Luisi is presently assigned to Malmstrom AFB as Minuteman II MCCC. He received his commission in 1968 and was assigned to the 308SMW, Little Rock AFB, where he held positions as Deputy MCCC, Squadron Instructor, and Wing Instructor Flight Commander. In addition to his regular duties he works for the Special Service Officer in a career broadening program, and is the Vice President of the AFIT Graduate Student Council.

PENETRATION AND LANDING, COMPANY BUSINESS ONLY

CAPTAIN JIM JENCHURA
28 BMW, Ellsworth AFB

More pilots are killed while flying in departure and arrival traffic patterns and during the penetration phase than anywhere else in the flying environment. Both military and civilian, light and heavy aircraft drivers, are subject to conditions that could cause loss of concentration in the cockpit. Here at Ellsworth we have our share of hazardous conditions to labor under: military-civilian and light-heavy aircraft mixing in limited controlled airspace; multiple checklists and long, fatiguing flights at high altitude. However, it is evident that some crews are not paying complete attention to "company business" during critical phases of flight. This is evident when listening to conversations of crews who are in these phases of flight. Discussing whether P. E. will meet you at the aircraft, or whether you have certain 51-52 requirements to complete before the final landing should be accomplished prior to descent, whether it be a standard jet penetration or an enroute descent.

The average pilot has to think about ten times as fast as a bus or car driver. While doing that thinking, he must exercise the "see and avoid" concept, listen for clearances, tolerate weather, respond to checklists, combat fatigue and put up with three dimensional orientation. You are not allowed to talk to the Greyhound bus driver while he is driving because he may become distracted. Of the things that kill pilots and crews, distraction is the biggest item.

Let me give you some examples. Recently a T-29 and a civilian aircraft collided inflight. Neither crew saw the other aircraft in VFR conditions even though there were two pilots in the seats of the T-29.

A DC-9 flew into the ground in VFR conditions. The crew discussed a procedure with their dispatcher (the equivalent of the local SAC command post) during transition from enroute. They discussed the procedure some more among themselves while transitioning to the IAF. Nonoperational subjects were discussed while the captain tried to find the FAF, a VOR station. They tried to locate their position on final by ground references in an amusement park instead of flying the approach. While searching for the park, they discussed its merits. It was a familiar area to the crew. Your local area is pretty familiar to you, isn't it? One head in and one head out, right? They didn't pay attention!

Often in heavy traffic conditions, ATC will give fragmentary or partial clearances or expected approach clearance times with no accompanying clearance at the expected approach clearance time. Occasionally, their memory has to be jogged when you're up there with lots of other IFR traffic. That distracts pilots. It has distracted crews in the past and like situations will continue to distract crews in the future.

It takes approximately five seconds to transition from instruments to visual conditions and start receiving useful information from your sensory inputs. Trying to instruct a new pilot or copilot at the same time is more than twice as hazardous. If possible, let another crewmember handle the command post calls. Look around in the terminal area, but don't let the presence of other traffic destroy your concentration on the "company business," of flying the approach. Listen for clearances and anticipate what the clearance will be. Expect disorientation and be prepared to transfer control of the aircraft. If a lot of little factors are continually chewing on the precision of the approach or your concentration on flying it, go around, or let the other pilot fly the approach. If you are too tired to bring the necessary concentration to bear, let the other pilot fly the approach and relax for a moment. Finally, KEEP DOWN THE NOISE LEVEL IN THE COCKPIT. A fellow pilot's voice is the most attention-interrupting sound you can receive while trying to keep two ILS needles centered. An experienced crew that has just finished upgrading and is finally free of the rigorous gaze of an IP is vulnerable. Everyone who flies airplanes is vulnerable. It can happen to guys on either side, military or civilian.

COBRAS IN T

HE SKY

There is a rather interesting park called Timland on the outskirts of Bangkok, Thailand. You can watch the elephants working in tandem move huge logs out of the forest and into the river. There is a large variety of primates to keep the visitor amused. If you just want to sit in the shade of a banyan tree and watch the parade of sightseers from all over the world, you can do that too.

The most memorable section of the park for me though, was the cobra pit. With concrete sides which the reptiles cannot scale, it is a rambling area about 100 feet long by 20 feet wide with grass, weeds, trees and rocks to resemble the cobra's natural habitat. It is hard to realize at first that all the slithering reptiles are indeed deadly cobras. To the layman they look like common black snakes. Only later when they coil and raise their heads to strike does the feared hood appear causing even the most fearless heart to increase its beat.

Into this arena strolls a small Thai man who appears to pay more attention to the rail hanging audience than to the slithering death at his feet. He is their keeper. The scene resembles a bad dream as he stands just out of the striking reach of the cobras. Although there are many strikes the fangs almost never reach their target. Actually, the cobra man explains in halting English, he has been guilty of near fatal miscalculations five times in his career. Although cobra venom is normally fatal, it is possible to build up an immunity if you survive the first bite. Regardless, says the cobra man, successive bites aren't all that much fun either.

I can't help but be reminded of the cobra man when I see a lone aircraft gracefully lift off the runway. The crew actually operates in a similar kind of hostile environment that surrounds my strange friend from the East. Consider this. One miscalculation with the hooded ones and the cobra man is the victim. It's a mismatch because the man must always be on the defense while the reptile is either passive or on the offense. Aircraft in close proximity can pose a cobra-like threat to each other. Aircraft most always outweigh the crew's combined weight and usually outperform them in raw strength. One omission or miscalculation by the crew individually or collectively during flight and they could be the victims. The midair and ground impact on letdown are vivid examples of possible omissions or miscalculations. Again, it's a mismatch.

The similarities between the two-legged pit man and the aircraft are many. Both have a well documented history of actions and reactions, each usually quite predictable, and each has a very thorough and often complete set of rules, natural and man-made, they must follow. The difference, as I see it, is in the variety of the threat and the awareness of the threatened. The machine usually acts predictably when some natural or mechanical element intrudes upon an otherwise well ordered and well planned situation. The crew is usually capable of maintaining the desired order and plan of the mission despite the infinite varieties of threat that are possible. If an immediate threat were readily perceptible to the crew, they'd have it made. The greatest danger to the crew though, seems to be their inability to recognize their vulnerability. The same people who would be extremely wary walking among the cobras, climb aboard the aircraft relaxed and unwary.

I don't say stop flying and I don't say keep out of cobra pits. To each his own. But when you climb aboard your big bird, consider that your aircraft and the hostile flying environment present the same threat to you as the snakes did to the cobra man.

CAPT. ANON E. MOUSE

OTSL TRAINING

... A SYNOPSIS OF NEW PROGRAMS FOR SAC A

This is the first in a series of articles that will keep you abreast of the newest training materials produced and in production at OTSL. Since this is our introductory article, a little background information is in order.

Detachment 35, Operations Training Support Laboratory, reports directly to the Director of Operations and Training, Headquarters Strategic Air Command. Our primary mission is to "provide professional, educational, and training support for all CINCSAC/DOT combat crew operations training programs."

To manage its mission, OTSL is divided into three branches: Academic Training, Instructional Systems, and Training Devices. The role of each branch will be discussed and then we will examine recent products. For a detailed listing of current products, we suggest you refer to the OTSL Catalog dated 1 Mar 76 (available from your DOT). It describes what is available and how to obtain it.

The Academic Training Branch conducts formal training courses for SAC in air weapons and safety. The Air Weapons Instructor Course is taught to wing air weapons officers and follow-on training is provided by an annual seminar. The branch is responsible for the weapons courses taught by the respective CCTSs. Also, all weapons delivery tech orders and training manuals are coordinated through this office. Presently, the programs on individual weapons are being updated for future dissemination. The Training Branch conducts two safety courses, one for wing chiefs of safety and flying safety officers and the other for squadron additional duty nuclear safety officers and NCOs. In addition to these two courses, the annual SAC Safety Seminar is hosted by the Training Branch at Carswell AFB. This office was instrumental in producing "Crash Survival," a videotape of Brigadier General Spruance's presentation on flying and ground safety.

The Instructional Systems Branch is comprised of three sections: program management, television training, and sound/slide production. The goal of all three sections is the same; develop and prepare materials to support the combat crew training program. The main difference is the media used in presenting these materials; e.g., reference guides, videotapes, and 35mm sound/slide programs. The following videotapes have been produced since our catalog was printed in March:

(NOTE: Programs are unclassified unless otherwise stated)

1. "Programmed Depot Maintenance for Your B-52" — describes the role of the air logistics center depot.
2. "AN/ASN-121 (RC-135V)" — reviews the inertial navigation system used in the RC-135.
3. "AGM-69A for B-52, Part I" — a general review of the B-52 SRAM system.
4. "Evasion" — a SECRET program discussing the necessary procedures for successful aircrew evasion in hostile territory.
5. "AN/ASQ-48 Bombing/Navigation System" — demonstrates BNS radar and computer turn-on procedures, illustrates astrocompass, doppler, and autopilot operation, and discusses radar pressurization and cooling.
6. "FB-111 Degraded Avionics Operation" — discusses problems, procedures and solutions associated with degraded avionics (includes PIB 13 features).
7. "AGM-69A for FB-111, Part I" — general review of the FB-111 SRAM system.
8. "FB-111 Air Weapons" — a SECRET

TOPICS

RCREW TRAINING

program discussing B-43 and B-61 inflight procedures, release limitations, and possible malfunctions.

Your unit should have received the new Caramate sound/slide machines. The Caramates were discussed in the March issue of *Combat Crew*. Numerous sound/slide programs have been developed and are in use by the CCTSs, but a recently developed program entitled "Lesson Planning" is being distributed to each unit possessing a Caramate. A program on Arctic Survival is due out next, and work has started on Nav Terps. We are finding that many of the SACR 50-24 recurring ground training items lend themselves to the sound/slide format, so expect more programs to be forthcoming.

The Training Devices Branch is responsible for such training equipment as mockups, models, and trainers. With the increased use of the Instructional Systems Development (ISD) approach to training, the emphasis on training devices is turning from the large classroom type of mockup to the smaller desk top device that lends itself more to the self-teaching or one-on-one approach. An excellent example of this is our B-52D flight instrument trainer, an actual size, desk top mockup of the flight instruments (see item 407, page 21 in the OTSL Catalog). We are applying the ISD concept to more of our products, so let us know your requirements. OTSL is processing requests from the field for new training devices. Remember, all requests must be approved by your local DOT. See SACR 50-18 for ordering information.

This has been a brief look at how OTSL functions and what we have available to support combat crew operations training programs. Future articles will advise you of new programs and products. Remember, we're here to serve you.

An Eight Mile Free Fall

continued from page 13

Below me were two prominent fields in the middle of a large forest. I was now at about 2,000-3,000 feet so the fields became my primary target for landing. I was heading toward the first field but overshot it and tried to glide to the second field. What I didn't know until this time was that the forest between the two fields was a hilltop. As I approached the ground I saw a fire break or small road in the forest. I had just passed over it, so I turned the parachute 180 degrees and tried to get back to it. The four line jettison makes the chute unbelievably maneuverable and I not only returned to the road but overshot it again. I pulled hard on the right lanyard and was able to steer myself through the gap in the trees. I missed the treetops but was angling for the tree trunks so I pulled again and managed to miss everything. As I descended my fears were that the chute would tangle in the trees. Fortunately, this did not happen. I landed on a three foot bank bordering the road. I fell to my knees then back against the bank and landed on the seat pan. The touchdown was more gentle than any I ever experienced by jumping off the PLF training platform.

Three civilian cars approached me almost as soon as I touched down. I unfastened the J-2 releases even though the parachute had not billowed. I unfastened the gloves and removed them and my helmet. One of the civilians helped me disconnect the helmet hoses from the back of the suit. I found the "beeper" in the parachute harness and turned it off. I went immediately to the survival kit and removed the survival radio. I heard the "hiss" as the antenna became fully extended but I could not transmit or receive. I tried the other channels, all with the same results. I replaced the battery with the spare one, heard the "hiss" but was still unable to transmit or receive.

The local civilians were aware of my attempt to communicate to the other aircraft overhead and offered to drive me to a soccer field nearby in order to spread out my parachute as a signal. I got in one car and they loaded my equipment in the other car and we drove about one-half mile to a large field. After spreading the chute, I attempted to contact the other aircraft again by using the radio. It still was not working. We later found that a wire had been disconnected and this rendered the radio inoperative.

An Army helicopter arrived soon afterward. The para-rescue man aboard checked me over. I entered the helicopter and talked to the other aircraft on his UHF radio. He told me a CH-53 would be there in about twenty minutes to pick me up and transport me to a USAF base. The helicopter soon arrived and I departed the local countryside happy to be alive, grateful for good equipment and survival training which I had received.

PROFESSIONAL PERFORMERS

Pilot

Major Jerry Hoyt, 349 SRS, Davis-Monthan AFB.

TITAN Crew E-131, 308 SMW, Little Rock AFB: MCCC Capt Michael O. Cleary, DMCCC 2Lt James M. Latham, MFT Sgt Robert Pierce, MSAT A1C David Stockton.

Individuals selected for these pages as SAC's top professional performers of the month are chosen from nominations made by all SAC units. Selection is made only after all nominations have been carefully screened and those chosen meet the highest standards of excellence as outlined in SACR 127-2.

MSgt Denis Ryan, 380 OMS, 380 Bomb Wing, Plattsburgh AFB.

MINUTEMAN Crew E-174, 44 SMW, Ellsworth AFB: MCCC 1Lt Michael L. Walsh, DMCCC 2Lt Robert M. Nelson

The Common Thread

continued from page 3

process takes rise in the crib and is nurtured by the guidance, caring, love and respect of one's parents, teachers, clergy and all the others who affect the upbringing of the child. With self-discipline, it's easy for the individual to achieve the companion qualities of self-esteem, self-confidence and self-control.

There is no place in the military today for the undisciplined individual, crew or unit. In a world of the shrinking dollar, ever more expensive and complex weapon systems demanding ever more training and dedicated effort, we must have men and women able and willing to accept and overcome the challenges of the seventies, the eighties and beyond. Nothing less will do, for nothing less will insure the security and future of precious freedoms. Those who will not or cannot toe this line must be discovered and dismissed. We cannot afford the luxury of remaking these people.

To arrive at a disciplined crew force we must know which type of discipline is desired. There are many types to choose from. They run the full gamut from the harsh, unbending type typified in legends of the French Foreign Legion to that of some present-day European armies weakened by concessions to an organized minority more interested in self-indulgence than national security. We must reject both extremes and search the middle ground.

Today the volunteer crew force is composed of highly educated, dedicated personnel. Discipline is instilled in these people through humanistic leadership and training. We must care and we **do** care about the welfare of our crews. Their responsibilities are so awesome and the destructive capabilities at their fingertips so great that they operate in an environment of pressure beyond the comprehension of those not directly involved. To withstand this pressure, to excel and to stand as a bulwark for our way of life requires a special inner quality in the individual that can come only through discipline.

The combat crew-missile or aircraft - must think and perform as a unit. From two men in a Minuteman capsule to six men flying a B-52, coordination and rapid response to the direction of the crew commander require crew discipline. The crew commander in turn responds to his commander and he to his, right up the chain of command. Dedication to one's personal ideals, to those of his crew, to his unit's mission and to the cause of his country is paramount. That dedication is founded in discipline, the common thread that keeps the structure together as it has for many generations of Americans.

Vally Forge, Gettysburg, Ploesti, Hanoi — they're all memorials, monuments to the effectiveness of that indispensable ingredient, discipline.

★★★

Your Best Guarantee

continued from page 9

beginning. We have criticized the early aviators for having failed to do so, and it is intuitively obvious to us that their actions were an abuse of the parachute. But can we be sure that we are not still abusing the parachute today? This brings me to a second and final point. Failure to observe proper parachute inspection and handling procedures is just as much of an abuse as the failure to use the device at all. It is probably an area where most of us could stand a little improvement.

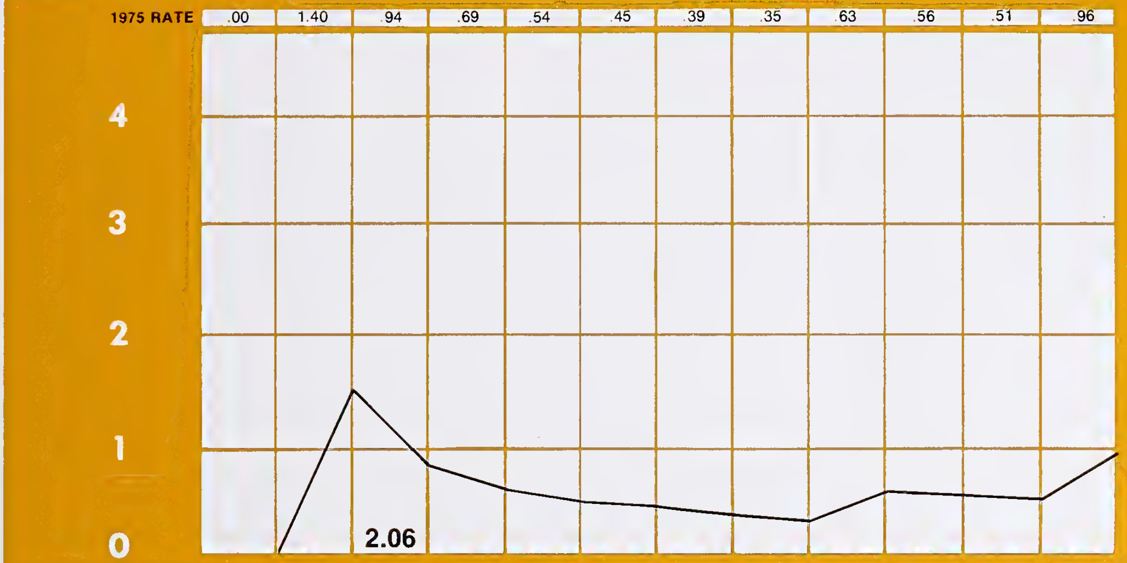
You may have observed instances of sloppy mishandling and hasty parachute inspection that shouldn't have occurred. If so, they were probably committed without a great deal of thought about possible consequences. For example, parachutes are checked by personal equipment specialists every thirty days. Anybody who accepts a chute with an overdue check date is only hurting his chances for successful bailout. Proper preflight inspections are the only means to insure that parachutes are in good working order. While one wouldn't want to rip the chute open to inspect every seam and shroud line, one would want to complete the approved inspection with meticulous care. The key to the matter is simple. Don't ever be in a hurry to complete a parachute preflight.

Equally unforgiveable are abuses in parachute handling. There may be a hundred and one possible uses for the standard service parachute, but only one of them is the proper one. Perhaps you have observed improper ones. Parachutes have been used as pillows, mattresses and footrests. They have been laid on a hot flight ramp for hours under a blazing sun. They have been thrown haphazardly into the back of a dirty crew bus. They have even been used as temporary aircraft wheel chocks. This list could go on and on, but the intent of such discussion is obvious. No one should have to use a parachute that has been so utterly abused. Take some precautions to insure that your parachute gets the tender-loving-care it properly deserves.

Since we seldom need to use a parachute, it is easy for us to become complacent about parachute safety. If you find yourself becoming complacent, remember this: there is no such thing as a half-reliable parachute. If you treat your parachute properly, it will function properly when you need it. If you don't treat it properly, then you really can't be sure about it. There is a standing joke among parachute packers. Quite simply, they guarantee a free replacement chute for any chute that doesn't work correctly the first time. Can you guarantee yourself a new body to go along with this parachute?

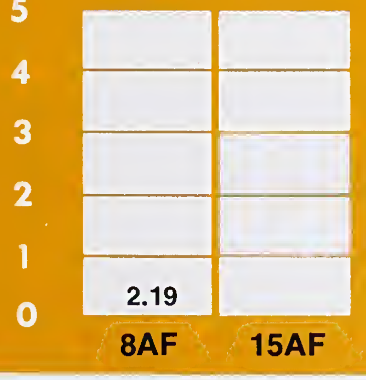
1976 Flying Safety Rate

SAC MAJOR ACCIDENT RATE (PER 100,000 FLYING HRS)



ACCIDENTS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1975	0	1	0	0	0	0	0	0	1	0	0	2
1976	0	2	0									

1976 SUBORDINATE CMD RATES



ACCIDENT STATUS

KC-135	FEB 76
FB-111	FEB 76

LEGEND — =1975 RATE

BIG INSTRUMENT

IFR MINIMUM ALTITUDES — PART I

Captain John L. Wilson,
1st Combat Evaluation Group,
Barksdale AFB, Louisiana

This is the first of a two part series on minimum altitudes. This article will discuss minimum altitudes encountered during the enroute phase of flight and next month will conclude with a discussion on terminal minimum altitudes.

Normally SAC pilots do not get that involved with enroute minimum altitudes since our flying is in the high altitude structure; however, you should be familiar with them. Definitions used apply to published routes in areas under FAA jurisdiction. When flying in other areas you should refer to the appropriate enroute supplement for the applicable area's application of minimum altitudes. Also keep in mind, when operating off published routes, you must apply the minimum altitudes as specified in AFR 60-16, Chapter 8.

When a route is established, the following obstruction clearance requirements establish minimum altitudes along that route. In nonmountainous areas the minimum obstruction clearance is 1,000 feet. In designated mountainous areas the minimum obstruction clearance will generally be 2,000 feet over the highest **terrain** and 1,000 feet over the highest **man-made** obstruction. There are times when 1,500 or 1,700 feet may be used as the minimum terrain clearance and more than 1,000 feet used over man-made obstacles. These clearance requirements apply within four miles either side of low altitude routes out to 51 NM from the VORTAC defining the route centerline. The lateral width then increases 4.5° until it intersects the similar width from the other VORTAC. (See Fig 1)

Using this clearance requirement, we can now define the Minimum Obstruction Clearance Altitude (MOCA) and the Minimum Enroute Altitude (MEA). They both use the same obstruction clearance requirements; the difference being that with a MOCA you are only guaranteed navigation signal reception when within 22 NM of the navigation aid. An MEA will generally assure acceptable navigational signal coverage along the entire course.

Figure 2 shows an example of this difference. V23 from LINDEN VORTAC to TURLOCK intersection shows MOCA of 2,000 feet MSL (the asterisk designates MOCAs) for the entire leg but has an MEA of 3,000 feet MSL from LINDEN to WOODWARD and an MEA of

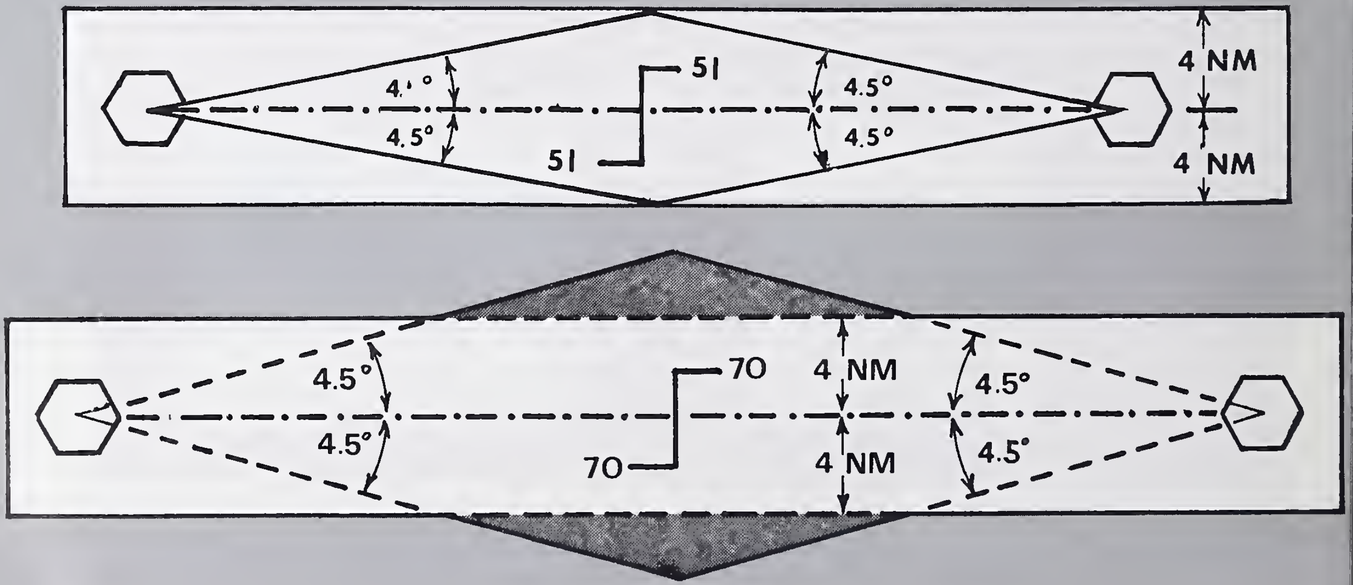


Figure 1

4,000 feet MSL from WOODWARD to TURLOCK. To receive adequate navigation signals at TURLOCK you should be at 4,000 feet MSL or above; although, you would clear all obstacles at 2,000 feet MSL.

Jet routes also have established MEAs. The MEA is 18,000 feet MSL (U.S.) unless otherwise annotated. Figure 3 shows an example. J158 between MINA and LUCIN has an MEA of 23,000 feet MSL. The words MEA GAP mean that you may not have continuous reception of the navigation signal over the complete route. An MEA GAP may also appear on low altitude airways. Before establishing a route with an MEA GAP, consideration is given to terrain features, distance between facilities, amount of signal gap, nearness of the airway or route segment to other routes, and the location of radio fixes for MEA changes and reporting points. When flying a route with an MEA GAP, you should establish on centerline and determine the heading to maintain the course as early as possible. When the signal is lost or becomes questionable, maintain heading and tune in the next station defining the course. Monitor the signal and your instruments and continue to fly the heading until you are sure the signal is reliable.

Another minimum altitude you are likely to encounter is the Minimum Crossing Altitude (MCA). Normally when a higher MEA is required for a portion of a route you would start the climb to the higher altitude at the point you first encounter the next higher MEA. However, to insure obstacle clearance at some places some points specify MCAs. An example is RED HILLS intersection along V485 (Fig 4). When flying V485 Southeast out of PRIEST VOR you should start a climb prior to reaching RED HILLS so you will cross RED HILLS at (or above) 7,000 feet MSL.

In order to define intersections with crossing VOR radials it is sometimes necessary to specify Minimum Reception Altitudes (MRA). An MRA is the minimum altitude you must be at in order to receive a reliable signal from an off-course VOR used to define an intersection.

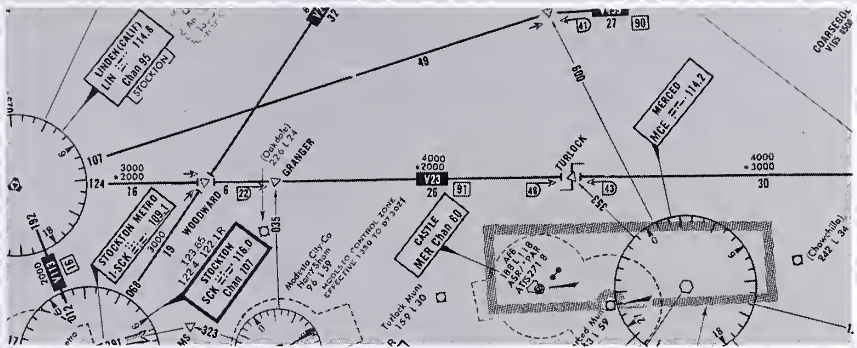


Figure 2

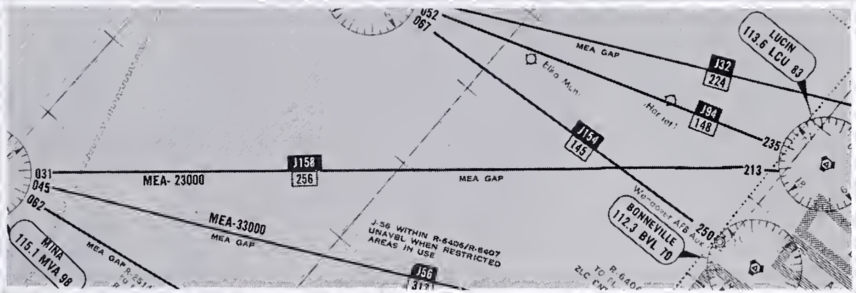
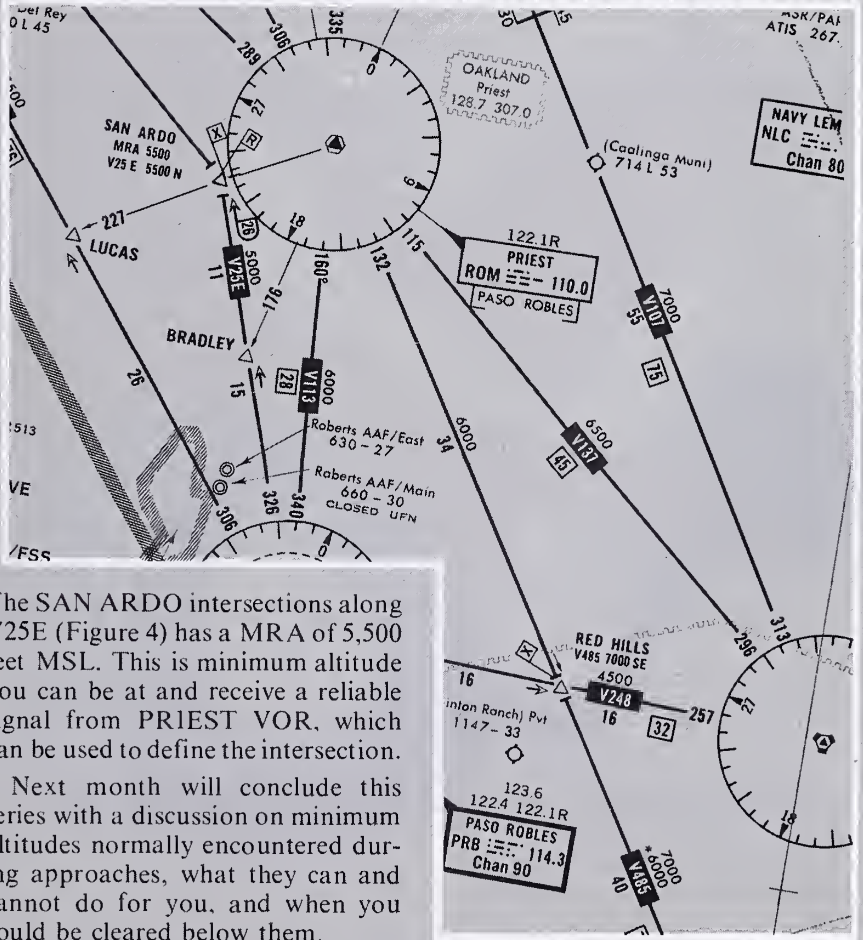


Figure 3

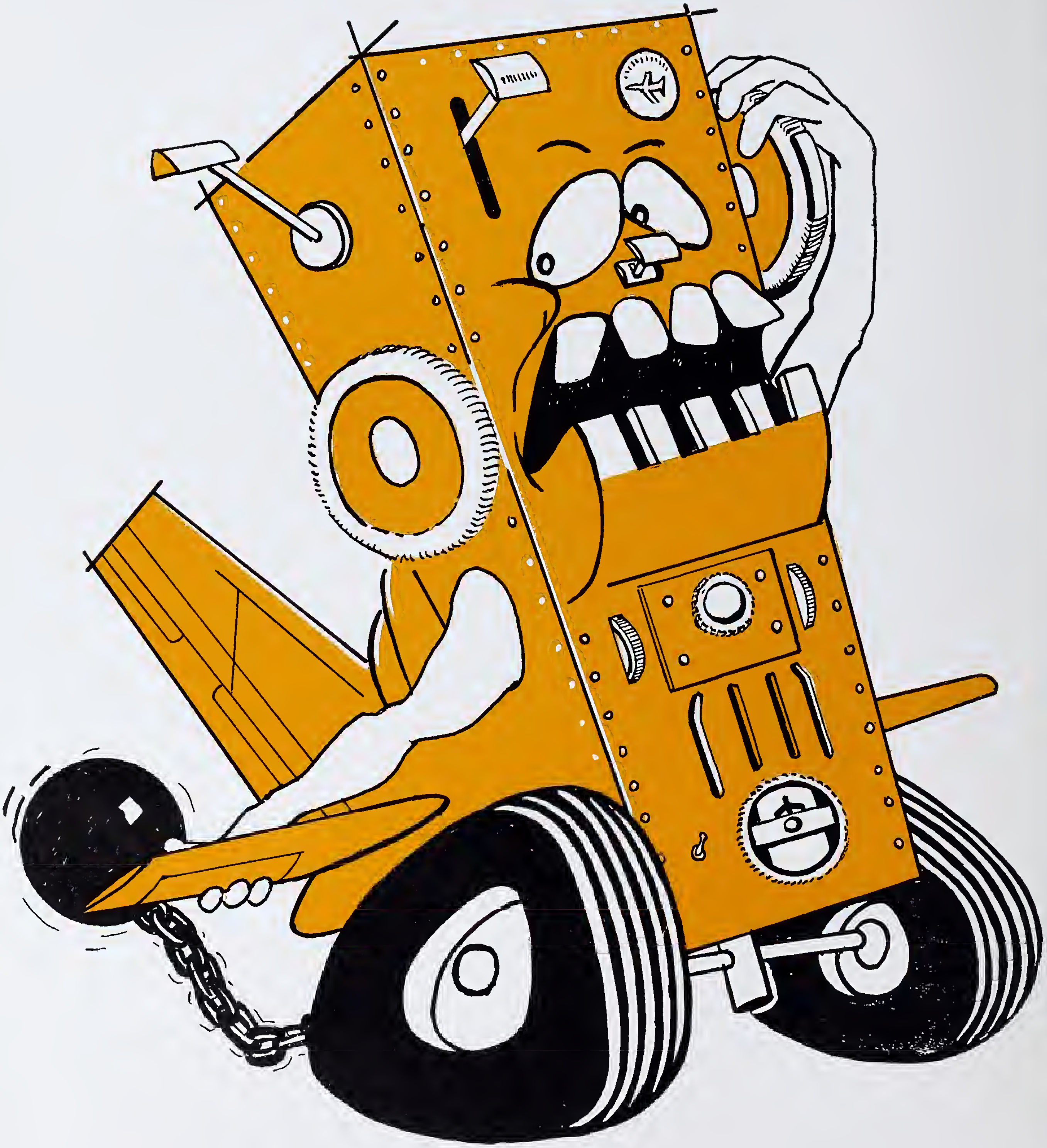
Figure 4



Del Rey 0 L 45
OAKLAND Priest 128.7 307.0
SAN ARDO MRA 5500 V25 E 5500 N
LUCAS
V25E 5000
BRADLEY
V113 6000
122.1R PRIEST ROM 110.0 PASO ROBLES
(Coalinga Muni) 714 L 53
NAVY LEM NLC Chan 80
ASR/PAR ATIS 267.
V107 7000
V137 6500
Roberts AAF/East 630 - 27
Roberts AAF/Main 660 - 30 CLOSED UFN
RED HILLS V485 7000 SE
V248 4500
(Hinton Ranch) Pvt 1147 - 33
123.6 122.4 122.1R PASO ROBLES PRB 114.3 Chan 90
V485 7000 *6000

The SAN ARDO intersections along V25E (Figure 4) has a MRA of 5,500 feet MSL. This is minimum altitude you can be at and receive a reliable signal from PRIEST VOR, which can be used to define the intersection.

Next month will conclude this series with a discussion on minimum altitudes normally encountered during approaches, what they can and cannot do for you, and when you could be cleared below them.



OPS HAZARDS

PARTIALLY DRAGGING BRAKE

Both the aircraft commander and copilot of the B-52 crew were scheduled to accomplish their annual 60-4 checks. All procedures up to takeoff were accomplished without incident. The runway was wet so takeoff data was recomputed. Planned takeoff distance was 8400 feet. As takeoff roll began, aircraft acceleration was normal. Upon reaching 70 KIAS, S_1 timing was initiated. The aircraft reached S_1 in the correct time, as confirmed by the pilot, copilot, and flight evaluator. From this point the remainder of takeoff roll and acceleration to S_2 speed required excessive runway. Unstick was accomplished at approximately 11,200 feet. All engine instrument indications were normal throughout takeoff roll.

The excessive ground roll was caused by number eight brake dragging.

This incident emphasizes the warning note in the performance section of the Dash One which states, "the speed check at the termination of acceleration check time will not show when the takeoff run will be excessively long due to such things as retracted flaps or extended airbrakes." Obviously "things" include a partially dragging brake.

TRIM FAILURE

After 45 minutes at FL 310, the B-52 descended for pattern work. On downwind for the third approach, the stabilizer trim failed (electric and manual). Using manual, the trim wheel could be turned three-fourths of a turn, but then would bind and stop; when released, it would snap back to the original position. Trim setting at this time was four degrees nose down. An emergency was declared, a HOTEL CONFERENCE including Boeing experts was set up, and the aircraft climbed to 10,000 feet. After confering with the experts, the pilot performed a controllability check. While performing the check, the trim became operational and was set at the computed landing setting. Again the trim failed. The aircraft descended to traffic pattern altitude. Low approaches were flown to determine exact flying characteristics at the lower altitude and during final approach. During the first approach, the trim again became operational and functioned properly thereafter. Boeing confirmed the landing data and trim setting prior to landing. Landing was smooth and uneventful. Cause of the trim malfunction was a broken wire on the stab trim heater. This allowed frost buildup on the jackscrew preventing stab trim, manual or electrical.

Lesson learned? This is a good example of an accident that was prevented. Through use of all resources, maintenance, operations, technical assistance, and above all, a logical step by step approach to the emergency, things went very smoothly. The purpose of the HOTEL CONFERENCE is to **aid** the pilot by channelizing information to help him effect a safe recovery.

HALL OF FAME

TACTICAL FLYING

OVER SIXTEEN YEARS

916 AREFS, Travis	Sep '59
97 BMW, Blytheville	Mar '60

OVER FIFTEEN YEARS

410 BMW, K. I. Sawyer	Oct '60
19 BMW, Robins	Oct '60

OVER FOURTEEN YEARS

11 AREFS, Altus	Feb '62

OVER THIRTEEN YEARS

301 AREFW, Rickenbacker	Jul '62
96 BMW, Dyess	Aug '62
449 BMW, Kincheloe	Aug '62

OVER TEN YEARS

320 BMW, Mather	Jul '65

OVER NINE YEARS

92 BMW, Fairchild	Feb '67

OVER EIGHT YEARS

55 SRW, Offutt	Jul '67
2 BMW, Barksdale	Aug '67
319 BMW, Grand Forks	Dec '67
22 BMW, March	Feb '68

OVER SEVEN YEARS

5 BMW, Minot	Feb '69

OVER SIX YEARS

42 BMW, Loring	Oct '69
93 BMW, Castle	Nov '69

OVER FIVE YEARS

28 BMW, Ellsworth	May '70

OVER FOUR YEARS

7 BMW, Carswell	Mar '72

ICBM

OVER TWELVE YEARS

381 SMW, McConnell	Nov '63

OVER ELEVEN YEARS

90 SMW, F. E. Warren	July '64
1 STRAD, Vandenberg	Sep '64

OVER TEN YEARS

308 SMW, Little Rock	Aug '65

To gain listing in the Hall of Fame, a SAC unit must be accident-free for 48 months.

SAC Safety Screen

The SAC Safety Screen is an honor roll of SAC's most professional crews. To gain listing on the Screen, crew members must be nominated by their unit commanders and meet high selection criteria of experience in their aircraft or missile system *IAW SACR 127-2.*

11 AREFS, Altus Crew E-117: P Capt Michael V Dougherty, CP Capt Alfred S Ferenczhalmy, NN 1Lt Thomas J St Pierre, BO SSgt Robert W McMullen
449 BMW, Kincheloe Crew R-06: AC Capt Frank Belote, CP 1Lt Kenneth Seitz, CP 1Lt Edward Vopelak, RN Capt Thomas Tyson, N 1Lt Edwin Wilkerson, EWO Capt David Stegura, G SSgt Gregory Spacher
7 BMW, Carswell Crew E-123: AC Capt Jan R Loomis, CP 1St Stephen C Brigman, N Capt John R Baugh, BO SSgt James A Welborn
410 BMW, K I Sawyer Crew E-17: AC Capt Rodney P Bosserdet, CP 1Lt Steven C Nunn, CP 1Lt Harold R Adams, RN Capt Arthur P Romzek, N 1Lt Harold W Grace III, EWO Capt Leslie A Tatarek, G Sgt Rory L Koon
2 BMW, Barksdale Crew E-60: P Capt Jack W Rachels, CP 1Lt Kevin S Clifford, RN Capt William A Rauschenback, N 1Lt David L Barclay, EW 1Lt Ronald P Poland, AG SSgt James E Howell
90 SMW, F E Warren Crew S-224: MCC Capt Stevan R Lucas, DMCCC 1Lt Thomas J Blazek
91 SMW, Minot Crew R-116: MCCC 1Lt Anzideo Ranalli, DMCCC 2Lt John A Milauskas
321 SMW, Grand Forks Crew S-203: MCCC Capt Gerald F Heiderscheit, DMCCC 1Lt John T Weeks III
341 SMW, Malmstrom Crew R-129: MCCC Capt Raymond L Thomas Jr, DMCCC 2Lt Robert H Soucy
351 SMW, Whiteman Crew S-005: MCCC Capt David A Peiper, DMCCC 2Lt William L Batson
381 SMW, McConnell Crew S-083: MCCC Capt William E Townsley, DMCCC 2Lt Reginald B Bryan, MSAT SSgt James B Sloan, MFT SSgt Charles N Garrison
390 SMW, Davis-Monthan Crew R-139: MCCC 1Lt Jon K Turnipseed, DMCCC 1Lt Robert D Meloy, MSAT Sgt Jack L Armentrout Jr, MFT Sgt Edward L Wilkinson
44 SMW, Ellsworth Crew E-174: MCCC 1Lt Michael L Walsh, DMCCC 2Lt Robert M Nelson
308 SMW, Little Rock Crew E-131: MCCC Capt Michael O Cleary, DMCCC 2Lt James M Latham, MFT Sgt Robert Pierce, MSAT A1C David Stockton
5 BMW, Minot Crew S-04: P Capt James H Monbeck, CP Capt Charles A Zychalski, CP Capt Charles L Chiesa, RN Capt Duane P Eilers, NN 1Lt Donald E Jackson, EW Capt Thomas K Easley, AG Sgt Phillip R Lee
9 SRW, Beale Crew E-17: P Maj James W Wilson, RSO Maj Bruce S Douglas
22 BMW, March Crew R-17: P Capt Phillip C Anderson, CP 1Lt John A Breed, RN Capt Francis H Marlow, NN 1Lt Harrison A Dunlavy Jr, EW 1Lt Bruce B Pafume, AG SSgt Dennis A Roice
92 BMW, Fairchild Crew R-168: P Capt Frederick J Foster, CP 1Lt Rick D Christenson, NN 1Lt Pierre D Junod, BO Sgt Dennis W Sucher
96 BMW, Dyess Crew E-06: P Capt Jerry A Gossner, CP 1Lt Michael K Brown, RN Capt Jim M Taylor, NN 1Lt Ronald D Cope, EW 1Lt Charles L Hanna, AG SSgt Timmy D Pinales
916 AREFS, Travis Crew E-119: P Capt Howard E Thomas, CP 1Lt Victor H Singleton, N 1Lt John M Donovan, BO TSgt Thomas Ard Jr

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IN THE SPIRIT OF '76

Through a lucky accident, you were born in America. I recommend that you occasionally do as I do every night — get down on your knees and, in all humility, thank God Almighty for the opportunities that our Free Land offered to all of us at birth . . . Everything about you is the world's finest. But you didn't make it that way.

One of my favorite adages is, that you can not get "something for nothing," or — more for less. Everyone of us must pay America back for all that she has given us. I don't mean that each of us has to go out and heroically lay down his life . . . It's better that we live for our country and pay back a little of our debt of gratitude each day . . . make the most of every opportunity you are given — every minute of the day. Make the most of every opportunity to learn. Make the most out of your training. Make the most of your equipment. Perform each duty — no matter how trivial it seems to you — as if it were of vital importance to our defense, because actually it is that important.

You are not serving your country by merely putting in time. You are not serving your country by taking chances or short cuts. To prevent war, America must be fully armed. To be fully armed means more than having enough tanks and guns and battleships and bombers. None of these weapons is any better than the men behind it. You are America's strength. You, individually, are obligated to your country and yourselves to be as strong as possible — morally, mentally and physically. You are America! Live that way!

Captain Eddie Rickenbacker

—Writing For *Combat Crew*, July 1957